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PERKIN-ELMER

OPTICAL GROUP NORWALK, CONNECTICUT

ENGINEERING REPORT NO. 8804A

FINAL REPORT

INTEGRATION OF THE BLOCK INTERFEROMETER,
THE DALMO-VICTOR AC RADIOMETER, AND THE IMAGE
ORTHICON AND TRACKING GATE SYSTEM INTO THE GLOW SYSTEM

DATE: SEPTEMBER 5, 1967

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ATTENTION: AMSMI - RNM

REDSTONE ARSENAL, ALABAMA

CONTRACT NO. DAA-H01-67-C-0069

SPONSORED BY:
ADVANCED RESEARCH PROJECTS AGENCY
PROJECT DEFENDER
ARPA ORDER NO. 559

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CONTRACT OBJECTIVE

The purpose of this contract was to provide a program for the integration of various government furnished optical instrumentation into the GLOW System.

SUMMARY

This report, which concludes Perkin-Elmer's efforts under Contract No. DAAK-H01-67-C-0069, defines the work required to integrate the Block Engineering Interferometer, the Palmo-Victor AC Radiometer, and the GLINT Image Orthicon Television System with Tracking Gates, into the GLOW System. The individual tasks for each integration are enumerated. The status of the GLOW system at the close of Perkin-Elmer's effort is also indicated.

SECTION 1**BLOCK ENGINEERING INTERFEROMETER****1.1 INTRODUCTION**

The tasks reported here completed Perkin-Elmer's effort in the integration of the Block Engineering Incorporated Interferometer in GLOW system No. 2, now located at Eniwetok atoll in the central Pacific.

Perkin-Elmer's tasks in the integration of the Block Engineering Interferometer consisted of the following:

1.1.1 Fabrication of a boresight base to hold the Block Engineering Interferometer. Perkin-Elmer delivered the base to Block Engineering Incorporated, 385 Putnam Avenue, Cambridge, Massachusetts.

1.1.2 Modification and rewiring of rack 2A9 in the GLOW System Instrument Van to provide space for the addition of the Block Engineering Interferometer control console. The wiring in the instrument van was also modified to provide the necessary lines to operate the Block Interferometer. All these wiring changes are contained in the wiring lists in paragraph 1.2.

1.1.3 Fabrication of the API shielded cable assemblies that will connect the interferometer to the GLOW mount instrumentation platform outlet plugs. These cable assemblies were delivered to General Electric, Valley Forge, Pennsylvania.

1.1.4 In addition, Perkin-Elmer furnished wire run sheets, a layout drawing of a suggested placement of the interferometer on the instrumentation pedestal, and a print of the boresight base, to Mr. Lloyd Taylor of General Electric Company.

1.2 SUMMARY

Because of the official turnover of the GLOW system to General Electric Company, the Block Engineering Interferometer will not be installed by the Perkin-Elmer field crew. The interferometer will be installed in the GLOW system at Ramstein by General Electric personnel.

1.3 DETAILED WIRE LISTS

The following figures contain detailed wire lists for the integration of the Block Engineering Interferometer in the GLOW system.

Figures 1, 2, and 3 are the wire lists for the Block Interferometer power plug, signal plug, and recorder plug, respectively.

Drawing numbers X578-0247, X578-0248, and X578-0249 contain the wire lists for the rack (249) of the GLOW instrumentation van. The instrument

van was modified, and connectors were installed to provide the necessary wiring for operation of the Block Engineering Interferometer.

POWER PLANT	Block JRA	2A9 PQ	DP2	2JB	2J10	1J1	1J2
Boards	A	33	TR2-400	BZ			22
Boards	B	37	TR2-400	BY			
Boards	C	38	Grounded DP2				
Boards	D						
Boards	E	29	TR2-310	AZ			21
Boards	F	30	TR2-310	BA			
Boards	G	31	Grounded DP2	BH			Ground
Boards	H	32	TR2-160		1	TR2-160	
Boards	I	33	TR2-160		h		13
Boards	J	34	Grounded DP2		1		14
Boards	K	35	TR2-160		1	TR2-160	
Boards	L	36	TR2-160		1		15
Boards	M	37	Grounded DP2		1		16
Boards	N	38	TR2-160		1		17
Boards	O	39	TR2-160		1		18
Boards	P	40	Grounded DP2		1		19
Boards	Q	41	TR2-160		1		20
Boards	R	42	TR2-160		1		21
Boards	S	43	TR2-160		1		22
Boards	T	44	TR2-160		1		23
Boards	U	45	TR2-160		1		24
Boards	V	46	TR2-160		1		25
Boards	W	47	TR2-160		1		26
Boards	X	48	TR2-160		1		27
Boards	Y	49	TR2-160		1		28
Boards	Z	50	TR2-160		1		29
Boards	AA	51	TR2-160		1		30
Boards	AB	52	TR2-160		1		31
Boards	AC	53	TR2-160		1		32
Boards	AD	54	TR2-160		1		33
Boards	AE	55	TR2-160		1		34
Boards	AF	56	TR2-160		1		35
Boards	AG	57	TR2-160		1		36
Boards	AH	58	TR2-160		1		37
Boards	AI	59	TR2-160		1		38
Boards	AJ	60	TR2-160		1		39
Boards	AK	61	TR2-160		1		40
Boards	AL	62	TR2-160		1		41
Boards	AM	63	TR2-160		1		42
Boards	AN	64	TR2-160		1		43
Boards	AO	65	TR2-160		1		44
Boards	AP	66	TR2-160		1		45
Boards	AQ	67	TR2-160		1		46
Boards	AR	68	TR2-160		1		47
Boards	AS	69	TR2-160		1		48
Boards	AT	70	TR2-160		1		49
Boards	AU	71	TR2-160		1		50
Boards	AV	72	TR2-160		1		51
Boards	AW	73	TR2-160		1		52
Boards	AX	74	TR2-160		1		53
Boards	AY	75	TR2-160		1		54
Boards	AZ	76	TR2-160		1		55
Boards	BA	77	TR2-160		1		56
Boards	BB	78	TR2-160		1		57
Boards	BC	79	TR2-160		1		58
Boards	BD	80	TR2-160		1		59
Boards	BE	81	TR2-160		1		60
Boards	BF	82	TR2-160		1		61
Boards	BG	83	TR2-160		1		62
Boards	BH	84	TR2-160		1		63
Boards	BI	85	TR2-160		1		64
Boards	BJ	86	TR2-160		1		65
Boards	BK	87	TR2-160		1		66
Boards	BL	88	TR2-160		1		67
Boards	BM	89	TR2-160		1		68
Boards	BN	90	TR2-160		1		69
Boards	BO	91	TR2-160		1		70
Boards	BP	92	TR2-160		1		71
Boards	BQ	93	TR2-160		1		72
Boards	BR	94	TR2-160		1		73
Boards	BS	95	TR2-160		1		74
Boards	BT	96	TR2-160		1		75
Boards	BU	97	TR2-160		1		76
Boards	BV	98	TR2-160		1		77
Boards	BW	99	TR2-160		1		78
Boards	BX	100	TR2-160		1		79
Boards	BY	101	TR2-160		1		80
Boards	BZ	102	TR2-160		1		81
Boards	CA	103	TR2-160		1		82
Boards	CB	104	TR2-160		1		83
Boards	CC	105	TR2-160		1		84
Boards	CD	106	TR2-160		1		85
Boards	CE	107	TR2-160		1		86
Boards	CF	108	TR2-160		1		87
Boards	CG	109	TR2-160		1		88
Boards	CH	110	TR2-160		1		89
Boards	CI	111	TR2-160		1		90
Boards	CJ	112	TR2-160		1		91
Boards	CK	113	TR2-160		1		92
Boards	CL	114	TR2-160		1		93
Boards	CM	115	TR2-160		1		94
Boards	CN	116	TR2-160		1		95
Boards	CO	117	TR2-160		1		96
Boards	CP	118	TR2-160		1		97
Boards	CQ	119	TR2-160		1		98
Boards	CR	120	TR2-160		1		99
Boards	CS	121	TR2-160		1		100
Boards	CT	122	TR2-160		1		101
Boards	CU	123	TR2-160		1		102
Boards	CV	124	TR2-160		1		103
Boards	CW	125	TR2-160		1		104
Boards	CX	126	TR2-160		1		105
Boards	CY	127	TR2-160		1		106
Boards	CZ	128	TR2-160		1		107
Boards	DA	129	TR2-160		1		108
Boards	DB	130	TR2-160		1		109
Boards	DC	131	TR2-160		1		110
Boards	DD	132	TR2-160		1		111
Boards	DE	133	TR2-160		1		112
Boards	DF	134	TR2-160		1		113
Boards	DG	135	TR2-160		1		114
Boards	DH	136	TR2-160		1		115
Boards	DI	137	TR2-160		1		116
Boards	DJ	138	TR2-160		1		117
Boards	DK	139	TR2-160		1		118
Boards	DL	140	TR2-160		1		119
Boards	DM	141	TR2-160		1		120
Boards	DN	142	TR2-160		1		121
Boards	DO	143	TR2-160		1		122
Boards	DP	144	TR2-160		1		123
Boards	DQ	145	TR2-160		1		124
Boards	DR	146	TR2-160		1		125
Boards	DS	147	TR2-160		1		126
Boards	DT	148	TR2-160		1		127
Boards	DU	149	TR2-160		1		128
Boards	DV	150	TR2-160		1		129
Boards	DW	151	TR2-160		1		130
Boards	DX	152	TR2-160		1		131
Boards	DY	153	TR2-160		1		132
Boards	DZ	154	TR2-160		1		133
Boards	EA	155	TR2-160		1		134
Boards	EB	156	TR2-160		1		135
Boards	EC	157	TR2-160		1		136
Boards	ED	158	TR2-160		1		137
Boards	EE	159	TR2-160		1		138
Boards	EF	160	TR2-160		1		139
Boards	EG	161	TR2-160		1		140
Boards	EH	162	TR2-160		1		141
Boards	EI	163	TR2-160		1		142
Boards	EJ	164	TR2-160		1		143
Boards	EK	165	TR2-160		1		144
Boards	EL	166	TR2-160		1		145
Boards	EM	167	TR2-160		1		146
Boards	EN	168	TR2-160		1		147
Boards	EO	169	TR2-160		1		148
Boards	EP	170	TR2-160		1		149
Boards	EQ	171	TR2-160		1		150
Boards	ER	172	TR2-160		1		151
Boards	ES	173	TR2-160		1		152
Boards	ET	174	TR2-160		1		153
Boards	EU	175	TR2-160		1		154
Boards	EV	176	TR2-160		1		155
Boards	EW	177	TR2-160		1		156
Boards	EX	178	TR2-160		1		157
Boards	EY	179	TR2-160		1		158
Boards	EZ	180	TR2-160		1		159
Boards	FA	181	TR2-160		1		160
Boards	FB	182	TR2-160		1		161
Boards	FC	183	TR2-160		1		162
Boards	FD	184	TR2-160		1		163
Boards	FE	185	TR2-160		1		164
Boards	FF	186	TR2-160		1		165
Boards	FG	187	TR2-160		1		166
Boards	FH	188	TR2-160		1		167
Boards	FI	189	TR2-160		1		168
Boards	FJ	190	TR2-160		1		169
Boards	FK	191	TR2-160		1		170
Boards	FL	192	TR2-160		1		171
Boards	FM	193	TR2-160		1		172
Boards	FN	194	TR2-160		1		173
Boards	FO	195	TR2-160		1		174
Boards	FP	196	TR2-160		1		175
Boards	FQ	197	TR2-160		1		176
Boards	FR	198	TR2-160		1		177
Boards	FS	199	TR2-160		1		178
Boards	FT	200	TR2-160		1		179
Boards	FU	201	TR2-160		1		180
Boards	FV	202	TR2-160		1		181
Boards	FW	203	TR2-160		1		182
Boards	FX	204	TR2-160		1		183
Boards	FY	205	TR2-160		1		184
Boards	FZ	206	TR2-160		1		185
Boards	GA	207	TR2-160		1		186
Boards	GB	208	TR2-160		1		187
Boards	GC	209	TR2-160		1		188
Boards	GD	210	TR2-160		1		189
Boards	GE	211	TR2-160		1		190
Boards	GF	212	TR2-160		1		191
Boards	GG	213	TR2-160		1		192
Boards	GH	214	TR2-160		1		193
Boards	GI	215	TR2-160		1		194
Boards	GJ	216	TR2-160		1		195
Boards	GK	217	TR2-160		1		196
Boards	GL	218	TR2-160		1		197
Boards	GM	219	TR2-160		1		198
Boards	GN	220	TR2-160		1		199
Boards	GO	221	TR2-160		1		200
Boards	GP	222	TR2-160		1		201
Boards	GQ	223	TR2-160		1		202
Boards	GR	224	TR2-160		1		203
Boards	GS	225	TR2-160		1		204
Boards	GT	226	TR2-160		1		205
Boards	GU	227	TR2-160		1		206
Boards	GV	228	TR2-160		1		207
Boards	GW	229	TR2-160		1		208
Boards	GX	230	TR2-160		1		209
Boards	GY	231	TR2-160		1		210
Boards	GZ	232	TR2-160		1</		

WIDEN PLUG	JR3	2AV	DPT	JBT	1JR
		12	TR3	J3	
Space	A	2	1A	B	1
Space	O	1	1C	A	1
Shield	B	3		F	3
Shield	H	4	2C	H	4
Shield	C	5	2A	I	5
Shield	R	6		S	6
Shield	J	7	45C-12C	K	7
Shield	M	8	45A-12A	M	8
Shield	K	9		P	9
Shield	P	9	11C	G	10
Shield	L	10	11A	D	11
Shield	H	11		M	12
Shield	S	12	9A	J	13
Shield	Y	13		P	14
Shield	U	14	9C	U	15
Shield	V	15		C	16
Shield	X	16	19A		17
Shield	V	17			18
Shield	Z	18	7C	Y	19
Shield	b	19	7A	AE	20
Shield	a	20		AL	21
Shield	f	21	8C	A	22
Shield	i	22	8A	AA	23
Shield		23		AM	24
Shield	b	24	3C	J	25
Shield	l	25	3A	K	26
Shield		26		T	27
Shield	k	27	4C	W	28
Shield	l	28	4A	C	29
Shield		29		h	30

RECEIVER PLUG	PLUG J82	2A9 P3	2AB0 P1
Shield	A	30	30
Shield		19	19
Shield		20	20
Ambient Temp	C	21	21
Shield		31	31
Shield		32	32
Detected Temp	D	33	33
Shield		22	22
Shield		23	23
Reflector	E	24	24
Shield		34	34
Shield		35	35
RF Low Gain	F	36	36
Shield		25	25
Shield		26	26
RF - Low Gain	G	1	1
Shield		2	2
Shield		3	3
Shield		10	10
RF - H Gain	H	4	4
Shield	I	12	12
Shield		13	13

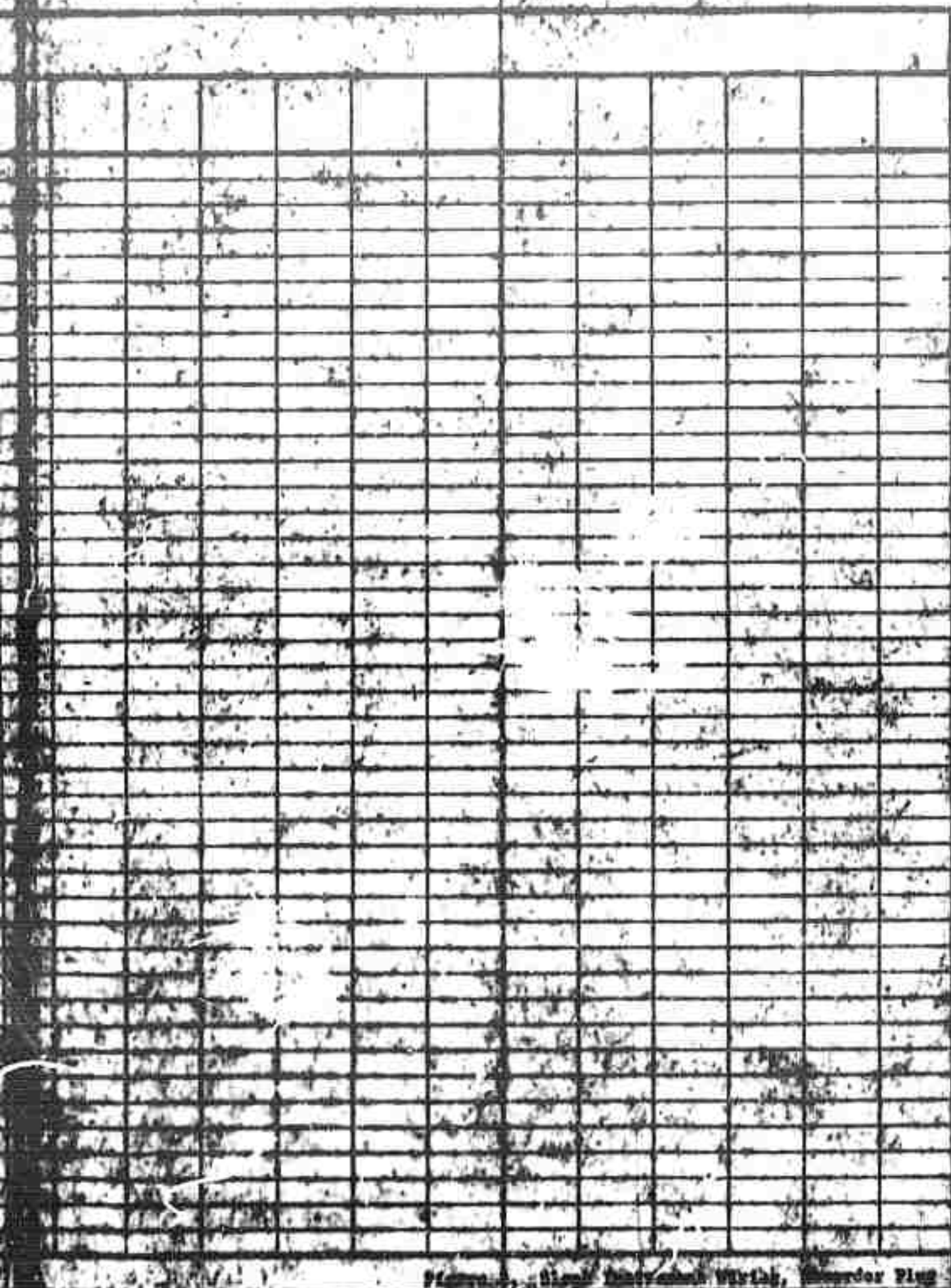


Figure 1. Signal between wiring, Recorder Plug

PERKIN-ELMER

Electro-Optical Division, Norwalk, Connecticut

CABLE 283

UNIT A DP2 - 13

TERMINATION

UNIT B DP2

UNIT "H" CABLE CONN.

UNIT "A" CABLE CONN 102 PIN INDEX

FROM UNIT A TERM NO.	WIRE NO. AWG.	WIRE COLOR	TO UNIT B TERM NO.	FUNCTION
DP2-TB2-1G	242-P2 - 1		20 AWG	SPARE-BLOCK
DP2-TB2-1A	- 2		20 AWG	SPARE-BLOCK
DP2-TB2-2C	- 4		20 AWG	SPARE-BLOCK
-2A	- 5			SPARE-BLOCK
-3G	- 7			SPARE-BLOCK
-3A	- 8			SPARE-BLOCK
-4C	-10			SPARE-BLOCK
-4A	-11			SPARE-BLOCK
-5C	-13			
-5A	-14			
-6C				
-6A				
-7C	-19			THERMISTOR
-7A	-20			THERMISTOR RTN
-8C	-22			HEATER
-8A	-23		20 AWG	HEATER RTN
-9C	-25		#18	LOW LEVEL DC BLOCK
-9A	242-P2 -17		#18	1KH2 - BLOCK
-10C	X		20 AWG	
-10A	X			
-11C	242-P2 - 9			SIGNAL - BLOCK
-11A	242-P2 -18			0 VOLT/+12/-12/ BLOCK
-12C	DP2-TB2-45C			+12 VDC BLOCK
-12A	-45A			-12 VDC BLOCK
-13C	-46C			
-13A	-46A			
-14C	X			
-14A				
-15C				
-15A				
-16C				
-16A				
-17C				
-17A				
-18C				
-18A			20 AWG	
-19C			18 AWG	
-19A			18 AWG	
-20C			20 AWG	
-20A				
-21C				
-21A				
-22C				
-22A	X			
-23C	242-P2 -13			
-23A	242-P2 -12			
-24C	X			
-24A	X			
-25C	X			
-25A	X			
-26C	X			
-26A	X			
-27C	X			
-27A	X			
-28C	X			
-28A	X			
-29C	X			
-29A	X			
-30C	X			
-30A	X			
-31C	X			
-31A	X			
-32C	X			
-32A	X			
-33C	X			
-33A	X			
-34C	X			
-34A	X			
-35C	X			
-35A	X			
-36C	X			
-36A	X			
-37C	X			
-37A	X			
-38C	X			
-38A	X			
-39C	X			
-39A	X			
-40C	X			
-40A	X			
-41C	X			
-41A	X			
-42C	X			
-42A	X			
-43C	X			
-43A	X			
-44C	X			
-44A	X			
-45C	X			
-45A	X			
-46C	X			
-46A	X			
-47C	X			
-47A	X			
-48C	X			
-48A	X			
-49C	X			
-49A	X			
-50C	X			
-50A	X			
-51C	X			
-51A	X			
-52C	X			
-52A	X			
-53C	X			
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-54C	X			
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-61A	X			
-62C	X			
-62A	X			
-63C	X			
-63A	X			
-64C	X			
-64A	X			
-65C	X			
-65A	X			
-66C	X			
-66A	X			
-67C	X			
-67A	X			
-68C	X			
-68A	X			
-69C	X			
-69A	X			
-70C	X			
-70A	X			
-71C	X			
-71A	X			
-72C	X			
-72A	X			
-73C	X			
-73A	X			
-74C	X			
-74A	X			
-75C	X			
-75A	X			
-76C	X			
-76A	X			
-77C	X			
-77A	X			
-78C	X			
-78A	X			
-79C	X			
-79A	X			
-80C	X			
-80A	X			
-81C	X			
-81A	X			
-82C	X			
-82A	X			
-83C	X			
-83A	X			
-84C	X			
-84A	X			
-85C	X			
-85A	X			
-86C	X			
-86A	X			
-87C	X			
-87A	X			
-88C	X			
-88A	X			
-89C	X			
-89A	X			
-90C	X			
-90A	X			
-91C	X			
-91A	X			
-92C	X			
-92A	X			
-93C	X			
-93A	X			
-94C	X			
-94A	X			
-95C	X			
-95A	X			
-96C	X			
-96A	X			
-97C	X			
-97A	X			
-98C	X			
-98A	X			
-99C	X			
-99A	X			
-100C	X			
-100A	X			

SEE TITLE

FOR COLUMNS 03 ONLY

SEE SA FOR 01

DRAWING NO.

REV.

SHEET

5978-0247

50

TITLE

FOR STUDENT USE ONLY

SEE SA FOR 51

DRAWING NO. REV. SHEET

E578-0247

SA 51

PERKIN-ELMER Electro-Optical Division, Norwalk, Connecticut			CABLE 2M3 LENGTH 7 FT.	
UNIT "A" CABLE CONN			UNIT A DP2 - 13	
UNIT "B" CABLE CONN			TERMINATION	
UNIT B DP2			UNIT "B" CABLE CONN	
FROM UNIT A TERM NO.	WIRE NO. AWG	WIRE COLOR	TO UNIT B TERM NO	FUNCTION
DP2-13-BV	DP2-TB2-26G	X	20 AWG WHI	TER GND
CD	A -26A	A	A BLK	TER GND
CL	-27C		WHI	TER GND
CM	-27A		BLK	TER GND
CO	-28C		V WHI	TER GND
CP	-28A		20 AWG BLK	TER GND
CQ	-29C		18 AWG WHI	TER GND
CR	-29A		18 AWG WHI	TER GND
CS	V -30C	V	20 AWG WHI	TER GND
CT	DP2-TB2-30A	X	20 AWG WHI	TER GND
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PERKIN-ELMER

Electro-Optical Division, Norwalk, Connecticut

UNIT A CABLE 2W11 5 FT

TERMINATION JP2 - J10 (Inst. Pwr)

UNIT B

UNIT "B" CABLE CONN

UNIT "A" CABLE CONN

FROM UNIT A TERM NO.	WIRE NO. AWG.	WIRE COLOR	TO UNIT B TERM NO.	FUNCTION
JP2-J10-A	16 AWG Wb	DP3-TB4-2C	2A9-P1-51	20 FDS MOTOR
B	16 Blk	2A	52	20 FDS MOTOR
F				SHIELD
H	20 Wb	DP3-TB1-2C	54	10 FPS MOTOR
H	6 Blk	2A	57	10 FPS MOTOR
S				SHIELD
U	Wb	DP4-TB1-3C		SPARE
C				SHIELD
d	Wb	3A	59	CALIB LAMP
P				SHIELD
q	Wb	4C	60	CALIB LAMP BYW
AB	Y			SHIELD
AM	20 Wb	Y 4A	62	120V 400 CPS 6A
BA				SHIELD
J	16 Wb	DP3-TB4-3B	2A9-P1-75	MOTOR DRIVE 6A
K	16 Blk	3B	2A9-P1-76	CHASSIS ORD
T				SHIELD
S	16 AWG Wb	DP2-TB1-6C	2A9-P1-48	10 FPS MOTOR
a	6 Blk	6A	49	10 FPS MOTOR
h			50	SHIELD
b	Wb	7C	2A9-P1-67	400 C'S NEUTRAL
m	Blk	7A	2A9-P1-68	400 C'S NEUTRAL
n				SHIELD
N	Wb	8C	2A9-P1-72	SHUTTER CORR LAMP
N	Blk	8A	2A9-P1-73	SHUTTER CORR LAMP
AJ				SHIELD
Y	Wb	9C	2A9-P1-64	6A-C 400 CPS SERVO PWR
AK	Blk	9A	2A9-P1-65	N T N
AL				SHIELD
R	Y Wb	10C		SPARE
AA	18 AWG Blk	10A		SPARE
AK				SHIELD
C	16 Wb	11C	2A8-P3-43	SPARE
D	6 Blk	11A	2A8-P3-44	
H				
Z	Y Wb	12C	2A8-P3-46	
H	16 Blk	12A	2A8-P3-47	
F				
L	18 Wb	13C		
V	6 Blk	13A		
W				
X	Wb	14C		
Y	Blk	14A		
Q				
R	6 Wb	15C	2A9-P2-63	ON/180V/360V/BLOCK
R	18 Blk	15A	2A9-P2-64	+ 180V DC BLOCK
B				

TITLE
SYSTEM 02 ONLY
SEE 12A FOR 01

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PERKIN-ELMER

Electro-Optical Division, Norwalk, Connecticut

CABLE & WLO

UNIT A JP2-110

TERMINATION

UNIT B

UNIT "B" CABLE CONNL

UNIT "A" CABLE CONN.

FROM UNIT A TERM NO.	WIRE NO. AWG.	WIRE COLOR	TO UNIT B TERM NO.	FUNCTION
JP2-110-1	18AWG Wh	DP2-TB1-16C	2A9-P2-66	*100 VDC - BLOCK
	Blk	16A	2A9-P2-67	*PARE
AD	Wh	17C	2A9-P2-70	THERMISTOR - BLOCK
AE	Blk	17A	2A9-P2-71	THERMISTOR - BLOCK
AF	Wh	18C		TER GND
AG	18AWG Blk	18A		TER GND
AH				
AI	16 AWG Wh	19C	2A9-P2-73	COOLER - BLOCK
AJ	16 Blk	19A	2A9-P2-74	COOLER - BLOCK
AK				
AL	Wh	20C	2A4-P3-40	Camera Motor 115V (A)
AM	Blk	20A	2A4-P3-41	REN
AN				
AO	Wh	21C	2A4-P3-36	Future 115V (A)
AP	16 Blk	21A	2A4-P3-43	Future 115V (A)
AQ				
AR	20 Wh	22C		TER GND
AS	20 Blk	22A		TER GND
AT				
AV	16 Wh	23C	2A4-P3-37	Camera Motor 115V (B)
AW	16 Blk	23A	2A4-P3-38	REN
AX				
AY	18 Wh	24C		VII Her R n
AZ				
BA	18 AWG Wh	24A		Tracer Spars (Ter Gnd)
BB				
BC	20 AWG Wh	41C		TER GND
BD				
BE	Wh	41A		
BF				
BG	Wh	42C		TER GND
BH	Blk	42A		TER GND
BI				
BJ	18 Wh	43C		TER GND
BK	18 Blk	43A		TER GND
BL				
BM	18 Wh	44C		TER GND
BN	18 Blk	44A		TER GND
BO				
BP	18 Wh	45C		TER GND
BQ				
BR	20 18 Wh	45A		TER GND
BS	18 18 Wh	46C		
BT	20 18 Blk	46A		TER GND
BU				
BV	20 18 Wh	47C		TER GND
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JP2-110-99				
JP2-110-100				

TITLE
SYSTEM 12 03
SEE 19A FOR 01

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PERKIN-ELMER

Electro-Optical Division, Norwalk, Connecticut

UNIT A 2 A9 - P2

TERMINATION

UNIT B DP2 - YB1 - 2

UNIT B CABLE CONN.

UNIT "A" CABLE CONN

FROM UNIT A TERM NO.	WIRE NO. AWG.	WIRE COLOR	TO UNIT B TERM NO.	FUNCTION
2A9-P2-1	#22		DP2-YB1-1C	SPARE - BLACK
2			1A	SPARE - BLACK
3	SHIELD		TERM	
4	#22		2C	SPARE - BLACK
5			2A	SPARE - BLACK
6			TERM	
7			3C	SPARE - BLACK
8			3A	SPARE - BLACK
9	SHIELD		TERM	
10	#22		4C	SPARE - BLACK
11			4A	SPARE - BLACK
12	SHIELD		TERM	
13	#22		5C	
14			5A	
15	SHIELD		TERM	
16	#22		11C	0 VOLT/+12/-12/BLACK
18			11A	SIGNAL
19	SHIELD		TERM	
20	#22		7C	THERMISTOR - BLACK
21			7A	THERMISTOR RTN - BLACK
22	SHIELD		TERM	
23	#22		8C	HEATER - BLACK
24			8A	HEATER RTN - BLACK
25			TERM	
26	#18		9C	LOW LEVEL DC - BLACK
27	SHIELD		TERM	
28	#18		9A	1K HZ - BLACK
29	SHIELD		TERM	
30	#22		31C	SPARE - BLACK
31			31A	SPARE - BLACK
32	SHIELD		TERM	
33	#22		45B	+12V DC BLACK
34			45B	-12V DC BLACK
35	SHIELD		TERM	
36	#22		33C	SPARE
37			33A	
38	SHIELD		TERM	
39	#22		36C	
40			34A	
41	SHIELD		TERM	
42	#20		36B	
43	SHIELD		TERM	
44	#20		37A	
45	SHIELD		TERM	
46	#20		37C	
47	SHIELD		TERM	
48	#20		36C	
49	SHIELD		TERM	
50	#20		DP2-YB1-30A	
51	SHIELD			

FOR 51ST 1/2 UNIT
SEE 440A FOR #1 RUN

DRAWING NO.	REV.	SHEET
X578-0248		40B of 51

PERKIN ELMER

Electro-Optical Division, Norwalk, Connecticut

UNIT A 2A9 - P1

TERMINATION

UNIT B 2A10 - P1

UNIT "B" CABLE CONN

UNIT "A" CABLE CONN

FROM UNIT A TERM NO.	WIRE NO. AWG	WIRE COLOR	TO UNIT B TERM NO.	FUNCTION
2A9-P1-18	ALL 822	0	2A10-P1-18	
28		0	28	
29	SHIELD	0	29	
30		0	30	HEATER TEMP BLOCK
19		0	19	
20	SHIELD	0	20	
21		0	21	AMBIENT TEMP BLOCK
31		0	31	
32	SHIELD	0	32	
33		0	33	DETECTOR TEMP BLOCK
22		0	22	
23	SHIELD	0	23	
24		0	24	RADIOMETER - BLOCK
34		0	34	
35	SHIELD	0	35	
36		0	36	2V ₁ - LOW GAIN - BLOCK
25		0	25	
26	SHIELD	0	26	
1		0	1	F ₁ - LOW GAIN - BLOCK
9		0	9	
10	SHIELD	0	10	
4		0	4	F ₁ - HI GAIN - BLOCK
12		0	12	0 - VOLTS - BLOCK
13	SHIELD	0	13	
11		0	11	
2		0	2	
3	SHIELD	0	3	
7		0	7	
15		0	15	
16	SHIELD	0	16	
17		0	17	
18		0	18	
14		0	14	
5		0	5	
6	SHIELD	0	6	
27		0	27	
28		0	28	
50		0	50	
113A		0	38	
51		0	51	
35		0	39	
40	SHIELD	0	40	
60		0	60	
48		0	48	
49	SHIELD	0	49	
62		0	62	
70		0	70	
71	SHIELD	0	71	
72		0	72	
63		0	63	
64	SHIELD	0	64	
TITLE SYSTEM #3 ONE-Y SEN 42A FOR #1			DRAWING NO. X578-0248	REV SHEET 42B of 61

PERKIN-ELMER

Electro-Optical Division, Norwalk, Connecticut

UNIT A DP2 - TAI
TERMINATION
UNIT B
UNIT B CABLE CONN

UNIT "A" CABLE CONN

FROM UNIT A TERM NO.	WIRE NO. AWG	WIRE COLOR	TO UNIT B TERM NO.	FUNCTION	
DP2-TAI-1					2
1C					1
2A	JP2-110-H	2A9-P1-53		10 FPS MOTOR	2
2C	H	54		10 FPS MOTOR	2
3A	d	2A9-P1-59		CALIB LAMP	2
3C	u				2
4A	AM	2A9-P1-62		115V 400 CPS Ø A	2
4C	q	2A9-P1-60		CALIB LAMP	2
5A					2
5C					2
6A	a	2A9-P1-49		30 FPS MOTOR	2
6C	b	48		30 FPS MOTOR	2
7A	m	2A9-P1-88		NEUTRAL	2
7C	b	67		NEUTRAL	2
8A	R	73		RTN	2
8C	v	72		BROTHER CORR LAMP	2
9A	AK	65		NEUTRAL	2
9C	Y	66		2A-C 400 CPS SERVO FWR	2
10A	AA			Ter Gnd	2
10C	E			Ter Gnd	2
11A	D	2A9-P1-64		Rad #1 115V A.C. RTN	2
11C	C	63		Rad #1 115V A.C. R	2
12A	H	62		#2 FWR	2
12C	H	66		Rad #2 115V A.C.	2
13A	V				2
13C	L			Ter Gnd	2
14A	Y				2
14C	X				2
15A	r	2A9-P2-64		+180 V D.C. BLACK	2
15C	f	63		0 VOLTS/180V/360V/ BLACK	2
16A	b	67		SPARK	2
16C	B	66		+360V D.C. - BLACK	2
17A	JA	71		THUNDERSTON 17W - BLACK	2
17C	AP	70		THUNDERSTON - BLACK	2
18A	EC	72		COOLER - BLACK	2
18C	AB	73		COOLER RTN - BLACK	2
19A	AM			Ter Gnd	2
19C	AP			Ter Gnd	2
20A	AM	2A9-P3-41		Cam Ctn (A)	2
20C	AV	2A9-P3-40		Cam Motor 115V (A)	2
21A	QJ	2A9-P3-43		Future SC 115V (A)	2
21C	JA	2A9-P3-38		Future SB 115V (A)	2
22A	AM			Ter Gnd	2
22C	AV			Ter Gnd	2
23A	FP	2A9-P3-38	2A9-P3-12	Cam Rtn (B)	2
23C	WE	2A9-P3-37	2A9-P3-13	Cam Motor 115V (B)	2
24A	AM			Hot Choke (Ter Gnd)	2
25C	AP			Filter- Hot Rtn (Ter Gnd)	2
26A	JP2-110-H	2A9-P1-1		Rad (Gnd)	2
26C	JP2-110-H	2A9-P1-1		Rad (Gnd)	2
TITLE				DRAWING NO.	SHEET
				X578-0249	9 of 29

PERKIN-ELMER Electro-Optical Division, Norwalk, Connecticut			UNIT A DP2-TDZ TERMINATION UNIT B UNIT "B" CABLE CONN	
UNIT "A" CABLE CONN.				
FROM UNIT A TERM NO.	WIRE NO. AWG.	WIRE COLOR	TO UNIT B TERM NO.	FUNCTION
DP2-TDZ-1A	DP2-TDZ-1B	2A9-P2-2		At pin
1C	A	1		Test Sig #1
2A	B	2		#2 pin
2C	H	4		Test Sig #2
3A	K	0		Bus pin
3C	J	7		Test Receiver Out
4A	a	11		Quad pin
5C	B	10		Test Bus Out Quad
5A	e	15		Tach pin
5C	b	2A9-P2-13		Test Tach Out
6A	h			Ter Gnd
6C	v			Ter Gnd
7A	AR	2A9-P2-20		#1 pin
7C	R	19		Sig #1 Out
8A	AA	21		#2 pin
8C	s	22		Sig #2 Out
9A	d	17		-28 V D.C.
9C	u	25		+28 V D.C.
12A	AN			Ter Gnd
12C	g			Ter Gnd
11A	D	2A9-P2-18		0-100V D.C. Var x M1 Sig In
11C	C	2A9-P2-9		0-100V D.C. Var x A7 Sig In
12A	H	DP2-TDZ-45A		JUMPERS See Pg 2
12C	B	DP2-TDZ-45C		JUMPERS See Pg 2
13A	V	DP2-TDZ-46A		JUMPERS See Pg 2
13C	L	DP2-TDZ-46C		JUMPERS See Pg 2
14A	Y			
14C	X			
15A	F			
15C	I			
16A	n			
16C	B			
17A	AB			
17C	AF			Ter Gnd
18A	BC			
18C	AS			
19A	AK			
19C	AG			
20A	AV			
20C	W			
21A	AH			
21C	AT			
22A	AM			
22C	AV			
23A	AK	2A1-P1-12		
23C	AI	2A1-P1-11		
24A	AE			
24C	AV			
25A	BU			
25C	BT			
TITLE			DRAWING NO.	REV SHEET
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PERKIN-ELMER

Electro-Optical Division, Norwalk, Connecticut

UNIT A DP2 - TR2

TERMINATION

UNIT B

UNIT "B" CABLE CONN.

UNIT "A" CABLE CONN.

FROM UNIT A TERM NO.	WIRE NO. AWG	WIRE COLOR	TO UNIT B TERM NO.	FUNCTION
DP2-TR2-2A	DP2-11-CD			
16A	BV			
27A	CH			
27B	CL			
28A	CK			
28B	CR			
29A	CH			
29B	DS			
30A	EX			
30B	EM			
31A	DP2-18-BA	2A9-P2-30		Narrow Field Control
31B	AZ	29		Wide Field Control
32A	B			SPARE (Ter Gnd)
32B	B			
33A	BV	2A9-P2-36		Sync Rtn
33B	BH	35		In Phase Sync
34A	CH	40		Quad Rtn
34B	CL	39		Quad Phase Sync
35A	CP			
35B	CE			
36A	CH			
36B	CH	2A9-P2-41		B+
37A	BD	43		B-
37B	BE	45		OV
38A	BH	49		600 Rtn
38B	BZ	47		Control B+ 600V
39A	BE	53		1200 Rtn
39B	BE	52		Control B+ 1200V
40A	BV	57		Indicator
40B	BZ	55		Indicator
41A	CR			SPARE (Ter Gnd)
41B	CA			
42A	CJ			
42B	CH			
43A				
43B	BH			Ter Gnd
44A				
44B				
45A	DP2-TR2-12A	45B		
45C	DP2-TR2-12C	45D		
46A	DP2-TR2-13A	46B		
46C	DP2-TR2-13C	46D		
47A				
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SECTION II**DALMO-VICTOR AC RADIOMETER****2.1 INTRODUCTION**

Perkin-Elmer's efforts in the integration of the AC Radiometer in Project GLOW at the Salinas Peak Installation, White Sands Missile Range (WSMR), New Mexico, included:

- 2.1.1 Preliminary liaison with Dalmo-Victor personnel on electrical and mechanical specifications prior to installation.
- 2.1.2 Construction of necessary cabling to meet interface requirements.
- 2.1.3 Rewiring of the GLOW Instrument Van and modified Nike Ajax tracking pedestal.
- 2.1.4 Installation of the AC Radiometer and rebalancing of the tracking platform.
- 2.1.5 Installation of the Radiometer electronics and recording equipment in the GLOW Instrument Van.

2.1.6 Assisting Dalmo-Victor personnel in System checkout and boreighting.

2.1.7 Assisting Dalmo-Victor personnel during pre-mission checkout in utilization of the GLOW Systems Target Board and Calibration facilities.

2.2 SUMMARY

2.2.1 Installation

The required electrical interface wiring of the GLOW Instrument Van and Nike Ajax tracking pedestal was initiated at the Salinas Site during the latter weeks of June 1965.

Mounting of the AD Radiometer, rebalancing of the tracking platform, and system checkout were concluded by mid-July 1965.

Figure 4 shows the GLOW System installation at Salinas Peak.

2.2.2 Operation

Operation of the Dalmo-Victor Radiometer was accomplished during required missions by the technical staff personnel of the Dalmo-Victor Corporation. This period extended from mid-July 1965 to early January 1966.

Evaluation of any acquired data and direct operation of the Radiometer was the responsibility of the Dalmo-Victor technical staff.

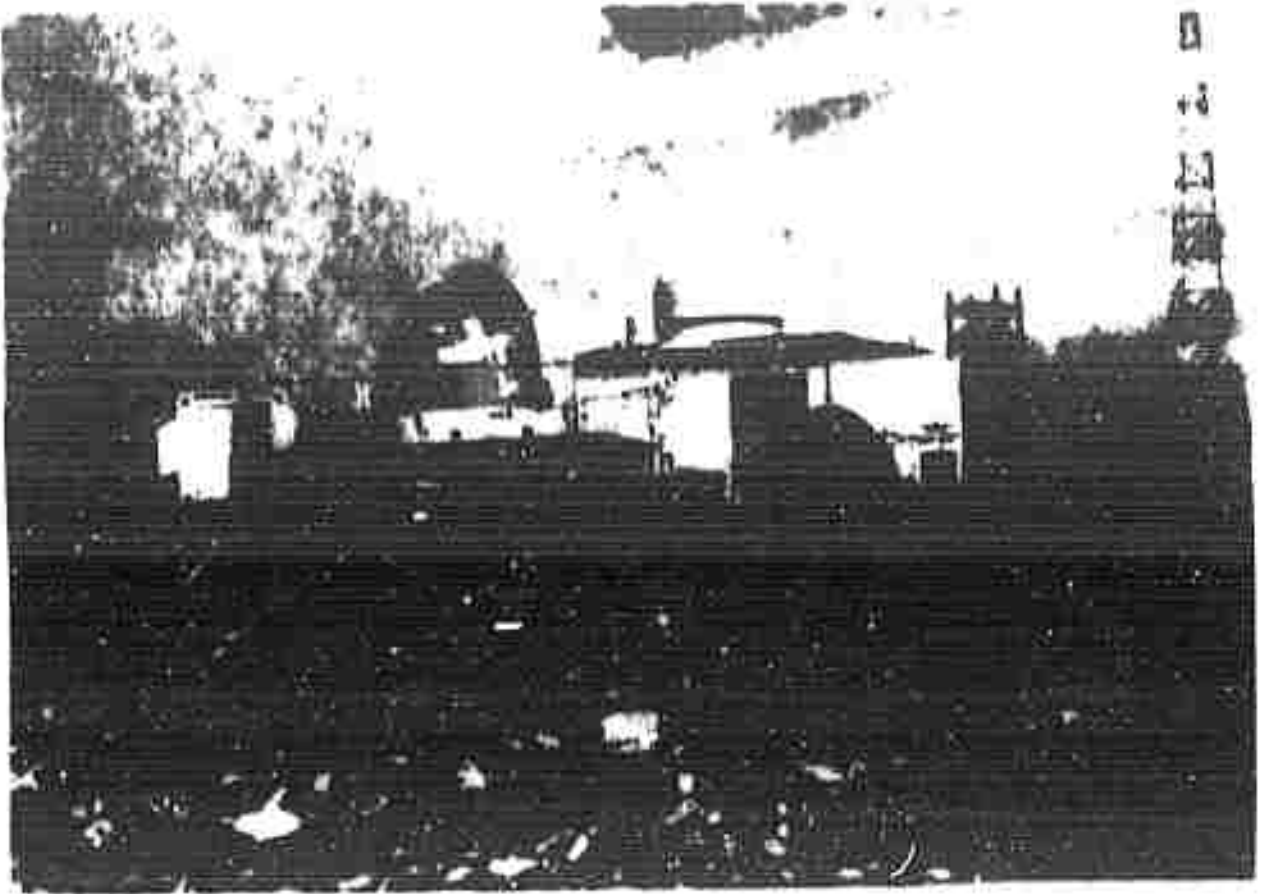


Figure 4 GLOW Optical Receiver Instrumentation Site, White Sands Test Range Installation

2.2.3 Equipment Removal

The Dalmo-Victor Radiometer was removed from GLOW System I before transfer of the GLOW system from Salinas to Sole-Site in February 1966.

SECTION III

IMAGE ORTHICON TELEVISION AND TRACKING GATE SYSTEM

3.1 INTRODUCTION

In order to improve the automatic tracking and visual acquisition capabilities of the GLOW System, provision was made for the integration of the GLINT Image Orthicon Tracking System.

3.2 BASIC EQUIPMENT DESCRIPTION

The GLINT System utilizes a 12-inch, f3 cassegrain configuration (lens) with a 1.8×2.4 degree field of view, in conjunction with a General Electric TE-17A chain with automatic beam control and an 8-20 image orthicon tube.

This unit with its integrated boresighting base is mounted on the GLOW tracking platform.

The interface cabling connects the camera to the GLOW Instrument Van, where the ID video output is displayed on the C scope monitor; incorporated are two expanded A scopes (display recording monitors) which present radiometric data of the two targets tracked by operator B (these have been selected by the use of the Bendix Gates). The GLOW System video monitor at the main console displays the tracked target.

In addition, provisions are included for the photographic recording of the C and A scope presentation with a synchronized 3 mm cine-camera.

The tracking system consists of a Bendix four-gate tracking circuit with manual (joystick) or automatic tracking of up to four gates. The control or error signal from any one gate is used to control the GLOW pedestal as selected by mission requirements.

3.3 INTEGRATION AND INSTALLATION

Preliminary interface requirements (wiring and mechanical layouts, construction of cabling) were accomplished by Perkin-Elmer's field systems group at Norwalk, Connecticut.

Actual wiring was initiated by the Perkin-Elmer field crew in November 1965 at the Salinas Site and continued after the GLOW System transfer to Sole-Site.

Completion of the installation by the field crew was concluded in March 1966.

The following tasks were performed in this interface.

- 3.3.1 Preliminary interface wiring and mechanical requirements.
- 3.3.2 Construction of necessary cabling.
- 3.3.3 Rewiring of the Instrument Van.
- 3.3.4 Installation of the TV camera and optics on the GLOW pedestal platform.

3.3.5 Rebalancing of the GLOW pedestal platform.

3.3.6 Installation of the TV rack and console in the Instrument Van.

3.3.7 Boresighting of the TV camera.

3.3.8 Closing, optimization, and evaluation of the TV tracker servo loop.

During the checkout and evaluation phase of the installation, the field crew was ably assisted by members of the General Electric Company technical staff responsible for the IO system.

3.4 SUMMARY

The preliminary operation of the Image Orthicon System showed that the visual acquisition capabilities of Project GLOW were significantly advanced.

Perkin-Elmer's contract at WSMR for GLOW System I installation was concluded on April 1, 1966, before the tracking capabilities could be fully evaluated.

Under a contractual extension, two Perkin-Elmer employees were at WSMR until July 1, 1966, and confirmed the improved tracking capabilities indicated previously by the preliminary evaluation.

This equipment is still in active use at the GLOW Solo-Site Installation, WSMR.